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## *Encouraging voluntary reading: The impact of a literature program on children's use of library centers*

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THE PURPOSE of this study was to determine whether children's voluntary use of library centers and their attitudes toward reading could be positively affected by involvement in a literature program emphasizing the enjoyment of books. Six second-grade classes were assigned to one control group and two experimental groups—a group in a school-based program and a group in a school- and home-based program. Questionnaires and observations were used to assess students' attitudes and behaviors before, during, and after involvement in the program. Voluntary use of the library center during free-choice time in school significantly increased in both experimental groups. Moreover, this effect continued after the intervention had ended. Girls engaged in library center activities significantly more than boys and were more responsive to the intervention. However, achievement level was unrelated to library center use or to responsiveness. The intervention had no effect on students' attitudes toward reading nor on reading habits at home. Because the results of a parent questionnaire suggest that parents did not fully implement the home-based program, increases in use of the library center in both experimental groups can be attributed to the school-based intervention.

## *Encouragement à la lecture volontaire: L'impact d'un programme de littérature sur la fréquentation de la bibliothèque par les enfants*

CETTE ÉTUDE visait à déterminer si l'utilisation volontaire d'une "bibliothèque" dans la salle de classe par les enfants et leur attitude face à la lecture pouvaient être affectés significativement par une participation à un programme littéraire soulignant le plaisir procuré par la lecture. On a assigné six classes de sixième année à un groupe contrôle et à deux groupes expérimentaux; un groupe dans un programme applicable à l'école et un groupe dans un programme applicable à la maison. On a utilisé les techniques du questionnaire et de l'observation pour rendre compte des attitudes et comportements des élèves avant, pendant, et après la participation au programme. Le taux d'utilisation volontaire de la bibliothèque durant les temps libres à l'école a augmenté considérablement dans les deux groupes expérimentaux. D'ailleurs, cet effet a persisté même après la fin de l'intervention. On a également constaté que les filles participaient plus que les garçons aux activités proposées et qu'elles étaient plus réceptives lors de l'intervention. Toutefois, le niveau de rendement n'était pas relié à l'emploi de la bibliothèque ou au degré de réceptivité. L'intervention n'a produit aucun effet sur l'attitude des élèves envers la lecture ni sur leurs habitudes de lecture à la maison. L'accroissement de l'utilisation de la bibliothèque observé dans les deux groupes expérimentaux n'est attribuable qu'à l'intervention survenue à l'école puisque, selon les résultats d'un questionnaire destiné aux parents, ceux-ci n'ont pas appliqué entièrement le programme prévu pour la maison.

### *El reforzamiento de la lectura voluntaria: El impacto de un programa de literatura en la manera en que los niños usan las bibliotecas*

EN ESTE ESTUDIO pretendimos determinar si el uso voluntario de las bibliotecas y las actitudes de los niños hacia la lectura podían ser afectados positivamente al participar en un programa de literatura que enfatizaba el placer por el uso de los libros. Seis clases de segundo grado fueron asignadas a un grupo control o a dos grupos experimentales: de los dos grupos experimentales, uno estuvo en un programa con base en la escuela y otro con base en la casa. Se usaron cuestionarios y observaciones para medir la actitud y el comportamiento de los estudiantes antes, durante y después de la participación en el programa. Se encontró que el uso voluntario de las bibliotecas por los estudiantes, durante su tiempo libre, aumentó significativamente en ambos grupos experimentales. Es más, este efecto continuó aún después que la manipulación había terminado. También se encontró que las niñas se involucraban de manera más significativa, en las actividades de las bibliotecas, que los niños, y que éstas respondieron más, también, a la manipulación. Sin embargo, el nivel de aprovechamiento no estuvo relacionado ni al uso de la biblioteca ni a la receptividad de los niños. La manipulación no tuvo efecto en las actitudes de los estudiantes hacia los hábitos de lectura o de no lectura en la casa. Dado que los resultados de un cuestionario dirigido a los padres sugiere que estos no implementaron totalmente el programa con base en la casa, los incrementos en el uso de las bibliotecas en ambos grupos experimentales puede atribuirse a la manipulación con base en la escuela.

### *Ermunterung zu freiwilligem Lesen: Die Auswirkung eines Literaturprogramms auf die Benutzung von Bibliotheken durch die Kinder*

IN DIESER STUDIE versuchten wir festzustellen, ob von einem Literaturprogramm, das die Freude an Büchern betont, die freiwillige Benutzung von Bibliotheken und ihre Einstellung dem Lesen gegenüber positiv beeinflusst werden kann. Sechs Klassen der zweiten Jahrgangsstufe wurden in eine Kontrollgruppe und zwei Versuchsgruppen aufgeteilt: eine Programmgruppe in der Schule und eine Programmgruppe zu Hause. Fragebogen und Beobachtungen wurden benutzt, um die Einstellung und das Verhalten der Schüler vor, während und nach der Teilnahme am Programm zu bestimmen. Die freiwillige Benutzung der Bibliothek während der frei zur Verfügung stehenden Zeit in der Schule stieg bedeutend in beiden Versuchsgruppen. Zudem dauerte diese Wirkung über das Ende des Programms hinaus an. Wir stellten auch fest, daß Mädchen die Bibliotheken weit mehr benutzten als Jungen und stärker auf das Programm reagierten. Die Leistungen waren jedoch nicht in Beziehung zu setzen zu der Benutzung der Bibliothek oder zu der Reaktionsbereitschaft auf das Programm. Das Programm hatte weder Auswirkungen auf die Einstellung der Schüler zum Lesen, noch auf die Lesegewohnheiten zu Hause. Da die Ergebnisse eines Elternfragebogens darauf schließen lassen, daß die Eltern das Programm zu Hause nicht voll anwandten, kann die vermehrte Benutzung der Bibliothek durch beide Gruppen auf das Schulprogramm zurückgeführt werden.

There is widespread agreement among educators on the importance of encouraging students to develop lifelong, voluntary reading habits. Nonetheless, it appears that a substantial number of children do not choose to read either for pleasure or for information. Greaney (1980), for example, found that fifth-grade stu-

dents spent only 5.4% of their leisure time engaged in reading; 22% did not read at all. In recent studies on the kindergarten level (Morrow, 1982; Morrow & Weinstein, 1982), we have observed that few kindergarten children choose to look at books during free-choice time. Blocks, housekeeping, and art projects

are far more popular activities. These findings are consistent with earlier studies of preschoolers' behavior conducted by Shure (1963) and Rosenthal (1973).

Unfortunately, the results of an extensive survey conducted by the Book Industry Study Group (1984) suggested that the situation is becoming worse instead of better. Although the number of adult readers had increased since the last survey in 1978, the number of readers under the age of 21 had decreased, from 75% in 1978 to 63% in 1983. The study group report hypothesized that new forms of electronic entertainment may be diverting the attention of youth from books and urged educators to seek ways of encouraging young people to become voluntary readers.

The attraction of electronic entertainment is undoubtedly one reason for the low level of voluntary reading among the young. Another factor may be that most school-based reading programs are skills-oriented and provide little opportunity for students to read for enjoyment (Lamme, 1976; Spiegel, 1981). Although a great deal has been written about the important role of literature in the early childhood/elementary classroom (Arbuthnot & Sutherland, 1977; Cullinan, 1977; Huck, 1976; Smith & Parker, 1977; Stewig & Sebesta, 1978), the use of literature appears to be quite limited (Hall, 1971). An investigation of literature use in nursery schools and kindergarten classrooms (Morrow, 1982), for example, found that most teachers had no regular literature program and read only occasionally to children. Library centers were poorly designed or nonexistent, and there was no time set aside for children to use books. An explanation for these findings is provided by a subsequent study (Morrow, 1986) of the attitudes of parents, principals, and teachers toward the development of voluntary reading as a responsibility of the school. When compared with reading skills, such as comprehension and word recognition, voluntary reading was regarded as important, but far lower in priority. Teachers felt they had little or no time to spend on the encouragement of recreational reading.

Findings like these suggest that school personnel have been assigned—or have assigned

themselves—the role of teaching literacy skills, whereas parents are left with the responsibility for conveying the enjoyment of reading. Certainly, in their efforts to identify the characteristics of voluntary readers, researchers (Connor, 1954; Greaney, 1980; Long & Henderson, 1973; Maxwell, 1977; Morrow, 1983; Whitehead, Capey, & Maddren, 1975) have documented the crucial role played by the home. Nevertheless, it would seem that the school could also be a potent force in the promotion and development of voluntary reading. Anecdotal reports of schools that have supplemented their regular reading programs with “spring reading campaigns,” “reading awareness weeks,” and “reading celebrations” (Irving, 1980; Manley & Simon, 1980; Manning & Manning, 1984; Rosler, 1979; Yatvin, 1977) suggest that such programs invariably enhance students' enthusiasm and foster positive attitudes toward books.

These reports are provocative, but more rigorous data are needed on whether recreational reading programs can actually increase voluntary reading. In numerous investigations, researchers have looked at the impact of recreational reading programs on attitudes and reading achievement (Bisset, 1970; Bullen, 1970; Cohen, 1968; Hanson, 1972; Kean, Summers, Raivetz, & Farber, 1979; Langford, 1978; Lawson, 1968; Manning & Manning, 1984; Oliver, 1973; Pfau, 1966; Reed, 1977; Towner & Evans, 1975; Wilmot, 1975). An earlier investigation we conducted (Morrow & Weinstein, 1982), however, appears to be the only study to use voluntary reading itself as the dependent variable. The results of this study were encouraging: Although very few kindergarten children chose to look at books during the baseline phase of the study, literature use increased dramatically when teachers incorporated enjoyable literature activities into the daily program and when library centers were created in the classrooms.

The present study, part of an ongoing program of research on voluntary reading, was designed as a follow-up to the kindergarten study. Both studies reflect the belief that “the final goal of a recreational reading program is that stu-

dents will enjoy reading and seek it as an activity" (Spiegel, 1981, p. 3). Accordingly, the major focus was again on students' actual reading behavior, as opposed to reading test scores. The overall plan of the study was to gather data on students' interest in voluntary reading, their reading behavior at home, and their reading behavior in school before, during, and after involvement in a recreational reading program designed to promote voluntary reading. Unlike the kindergarten study, the investigation took place in second-grade classrooms, where children have already acquired some basic reading skills; moreover, the baseline and intervention periods were far longer, the intervention was more rigorously implemented, and data collection procedures were more systematic and more comprehensive.

The primary goal of the investigation was to determine whether children's voluntary reading behavior and attitudes could be positively affected by an intervention consisting of two major components: (a) literature activities implemented by the teacher as part of the regular reading program, and (b) the creation of attractive, inviting library centers. We made no attempt to study the separate impact of each of these components on children's behavior. Indeed, in the kindergarten study (Morrow & Weinstein, 1982) we had encountered the difficulty of isolating program elements from classroom design. For example, after a teacher in that study told the class a story using a felt board, she would place the materials somewhere in the room. This area then became a locus for free-choice literature activity, creating a quasi library center.

The intervention was based on our own earlier research (Morrow, 1982, 1986; Morrow & Weinstein, 1982) and the recommendations of reading specialists and early childhood/elementary educators (Arbuthnot & Sutherland, 1977; Cullinan, 1977; Huck, 1976; Smith & Parker, 1977; Stewig & Sebesta, 1978). It was further guided by the developmental literacy theory of Holdaway (1979). According to Holdaway, schools spend a great deal of time teaching literacy skills, but leave no time for children to practice these skills. In addition to direct teach-

ing, Holdaway advocates a "developmental approach" characterized by self-regulated, individualized activities, frequent peer interaction, and an environment rich with materials. Within this environment, teachers model the activities and provide support and positive reinforcement.

Holdaway's developmental literacy theory is derived from observations of home environments where children have learned to read before coming to school and without direct instruction. Such supportive home literacy environments have a large supply of accessible reading and writing materials; moreover, parents read to children regularly, are responsive to their children's questions about books and print, view reading as a key to achievement, and read a great deal themselves (Teale, 1978). Holdaway suggests that the same type of environment is appropriate in school.

A secondary goal of our study was to assess the effect of a "reading-at-home" program in which parents were encouraged to read aloud, to go to the library, and to engage in other enjoyable literature activities with their children. Although correlational studies have demonstrated a link between characteristics of the home literacy environment and voluntary reading, and although reading-at-home programs have been initiated by some schools, there appears to be no experimental research examining the impact of a home intervention on voluntary reading. Nor have researchers addressed the combined effectiveness of home- and school-based programs. Thus, some of the subjects in our study were involved in a reading-at-home program that was intended to supplement the school-based program.

The investigation addressed the following specific questions:

1. Does involvement in recreational reading programs lead to a significant increase in children's voluntary reading during free-choice time in school?
2. Is a child's responsiveness to the programs related to sex and/or ability level?
3. Does the impact of the programs persist once they have been discontinued?

4. Does involvement in the programs lead to an increase in children's voluntary reading at home?

5. Does involvement in the programs lead to more positive attitudes toward voluntary reading?

## Method

### Design

Because the intervention had to be implemented at the classroom level, and because children could not be randomly assigned to conditions, we employed a time series design (Cook & Campbell, 1979). For each group, data were collected for 10 weeks prior to the intervention (baseline period), 9 weeks during the implementation of the intervention, and 3 weeks at the end of school (follow-up period). The time series design allows comparison between baseline data and intervention data *within each condition*, but *not between conditions*. Thus, the study could test separately the impact of each experimental treatment (the school-based program and the combined school/home program), but was not really designed to allow rigorous conclusions about which treatment was more effective. Because comparisons were not made across groups, there was no need for random assignment of classrooms.

A time series design controls for most threats to internal validity, such as maturation; however, the possibility still exists that an extraneous, unplanned event occurring at the same time as the intervention is responsible for any changes that are observed (e.g., a book fair held in the school that creates increased interest in reading). For this reason, a control group was added to the design.

### Subjects

The entire second grade (six classrooms with 69 boys and 73 girls) in a middle-class suburban school participated in the study. The six classes had been divided by the school into three teams, with the two teachers in each team working together closely when planning and teaching lessons. According to the teachers and

their unit leaders, the classrooms were heterogeneously grouped and were similar in terms of educational program and student characteristics (e.g., socioeconomic status, racial composition, and achievement level). All the teachers were female. They had been teaching for from 8 to 20 years, an average of 14. All teachers indicated their area of teaching strength was in the language arts.

The six classes all met the following criteria: (a) Voluntary reading was not already part of the regular reading program; (b) the classroom did not have a well-developed library center; and (c) both teachers in the team were willing to accept the many conditions imposed by the research. One team of classrooms comprised the control group (21 boys, 27 girls); the other two teams comprised the experimental groups, Group E1 (22 boys, 24 girls) and Group E2 (26 boys, 22 girls). Subjects in Group E1 received the school-based intervention only; subjects in Group E2 received the school-based intervention plus the reading-at-home program.

### Setting and Intervention

*Baseline period.* In order to measure children's voluntary interest in reading, we had to create a situation in which children could choose reading—if they wished—from among a set of appealing alternatives. Thus, at the beginning of the baseline period, four activity options, or *centers*, were introduced into all six classrooms: an arts and crafts center, a mathematical games center, a “mind-bogglers” center, and a library center. These centers provided the options from which children could choose during free-choice time. Each center consisted of an attractive, sturdy file box containing materials and activities that children could use anywhere in the room (i.e., they could work near the box or move back to their desks). When the materials were not in use, they could be packed in the box, which could be stored in a convenient location.

The art center contained items such as colored pencils, drawing paper, felt pens, paste, scissors, popsicle sticks, and stickers. The center was replenished on a regular basis, because

the materials were consumable. The math center contained games and manipulatives (e.g., tangrams, task cards, a money game, and dominoes). "Mind-bogglers" was a strategy game center that included Hi-Q, Sequence Cards, Boggle, Split Words, and other similar games requiring problem-solving skills. Finally, the baseline-period library center contained a selection of 35 new paperback books and some magazines. At this center, children could choose to read a book, read to or with a friend, or draw a picture about a book. All of the rooms had tape recorders, head sets, and story cassettes that could also be used if the children chose the library center during free-choice time.

*School-based program.* The school intervention had two components: teacher-initiated literature activities that were incorporated into the regular reading program, and the enhancement of the baseline-period library centers.

Prior to the start of the intervention period, teachers in the experimental rooms received a list of literature activities, as well as written guidelines specifying the frequency with which the activities were to be carried out. Teachers were to spend an average of about 20 minutes each day on literature. Certain activities were to be done on a daily basis—for example, reading or telling stories to children, discussing stories that were read, encouraging children to read whenever they had spare time and to check books out of the library center to take home, and reminding them to keep track of any books they read on index cards located in the library center. Other activities were to be carried out three times a week, and still others, once a week; in these cases, teachers were given lists of activities from which to choose. For example, three times a week, teachers were to select from activities such as having the principal, custodian, secretary, or a parent read to the children; helping children write to authors; having children read and tell stories to those in younger grades; showing movies or filmstrips of books; using literature in content area lessons; having children make their own books; and employing a creative storytelling technique (e.g., puppet shows, chalk talks, prop stories, music stories).

Teachers were also to serve as reading models by reading silently at their desks whenever free-choice time was scheduled.

In addition to these changes in curriculum, one area of each room was modified to serve as the new free-choice-time library center. The file box used as the library center during the baseline period was removed, and the books were displayed on shelves in this area. Although details differed from room to room, the same design guidelines were followed. These were based on work documenting the impact of the physical setting on children's behavior (e.g., Weinstein, 1977, 1979). The library center was located in a quiet area of the room; it was visually and physically accessible; it was large enough to accommodate at least five children at one time; and it was partitioned off from the rest of the room. Each library area contained shelves for displaying books with the covers showing, a bulletin-board display that urged children to read and to keep a record of their books read on index cards, and some pillows. Materials at each center included 90 paperback books (novels, picture books, poetry, biographies, etc.), children's magazines, a felt board and felt-board stories, a roll movie, audiotapes of stories and accompanying books, and materials for creating books.

*Reading-at-home program.* Parents of the 48 children in Group E2 were contacted by mail and asked to participate in a reading-at-home program. The 47 parents who responded affirmatively were asked to attend a training session on enjoyable literature activities to do with their children. Parents of 36 children actually attended. In this session, we explained the study, demonstrated activities, and provided parents with written guidelines. Parents were asked to read to their children daily, to take them to the library once a week, to make space for books in the child's room and in other parts of the house, and to choose at least three literature activities per week from a list of suggestions. Many of the activities were similar to the school-based program (e.g., making books, telling and tape-recording stories, and reading to parents).

## Measures

*Questionnaires.* Three questionnaires were used in the study. The first was the Assessment of Attitudes toward Reading in Primary Pupils (Askov, 1972), designed to tap students' interest in books and voluntary reading. Each page of this inventory displays two different pictures of a child involved in a recreational activity. Students were told to circle the picture of the activity they preferred. Eighteen of the 30 pairs of pictures include one showing a child reading a book. A subject's score was calculated simply by counting the number of times that the reading activity was circled. The inventory has been reported to have a one-week test/retest reliability of .91 and to be successful in identifying students nominated by their teachers as having high interest or low interest in leisure-time reading. The inventory was administered once at the end of the baseline period, and again at the end of the intervention period.

A second questionnaire asked children to indicate what they had done after school on the previous day, both before and after dinner. For each time period, the same nine activities were listed (e.g., "play outside," "watch television," "read or look at a book"). Children checked all the activities they had engaged in before and after dinner, and then circled the item engaged in the most in each time period. This questionnaire was administered once a week (each time on a different day) during the entire baseline and intervention periods.

Finally, parents were sent a "Home Environment Questionnaire" asking about their children's typical after-school activities and about characteristics of their "home literary environments" (e.g., whether children's books were present in the home, where the books were kept, whether the child had a library card, how interested the parents were in reading, etc.). The questionnaire contained 25 fixed-choice items. We had constructed and used it previously to determine the home correlates of early interest in literature (Morrow, 1983). The questionnaire was sent to all parents once at the beginning of the baseline period, and again at the end of the intervention period. Eighty-one percent of the parents returned both the first and

the second questionnaires. Scoring procedures are described in the results section.

*Behavioral records.* Voluntary reading behavior in school was assessed by implementing a 20-minute free-choice period three times a week. During this time, children could participate in one of the four activity centers provided by the experimenters: library, math games and manipulatives, arts and crafts, and "mind-bogglers." Before each period began, each child indicated his or her selection on a checksheet. Selection of the library center was used as the measure of voluntary reading behavior. At the end of the free-choice time, each child checked off the specific activities he or she had participated in at the chosen center. During one free-choice period each week, one of us was present in the room to observe the children's behavior and to keep anecdotal records. These observations were used to validate the children's check-sheets.

*Achievement data.* As an index of reading achievement, we used overall reading percentile scores on the Iowa Test of Basic Skills, administered to all children the previous year. Mean percentile scores for Groups E1 and E2 and the control group were 55.49, 65.66, and 54.29, respectively.

## Procedure

Prior to the beginning of the baseline period, all six teachers attended a workshop during which they received the materials to be used during the free-choice period and a set of guidelines. The teachers were also provided with a script to introduce the period to the children and to explain the procedures to be followed: Each child could choose to work in only one center during any free-choice period; movement in the room was to be limited; a child could work alone or with others; and free-choice time was to be relaxed and relatively quiet.

The baseline period was 10 weeks. During this time, we collected data on students' voluntary reading behavior during free-choice time, we administered the attitude inventory, and parents completed the home questionnaire. The children filled out the after-school activity checksheets once a week, on a different day



each week. Once during this period, all teachers completed the Literature Activity Form, a checklist on which they indicated the frequency with which they carried out various literature activities (e.g., reading or telling stories to children, or reading poetry) or engaged in behaviors intended to promote voluntary reading (e.g., mentioning books as a free-choice option, or encouraging children to read in their spare moments). This checklist was used to confirm that teachers were following the usual reading curriculum and were not involved in an intensive literature program.

Toward the end of the 10-week period, we conducted a workshop for the four experimental teachers. During this session, we demonstrated the literature activities, discussed the written guidelines, and distributed materials for the enhanced intervention-period library centers. We also distributed new materials for the other centers (math, art, and “mind-bogglers”), to insure that interest in literature was not simply a function of novelty. (Materials were also added to the art, math, and mind-boggler centers in the control classrooms, and the books in those library centers were changed). Finally, the teachers in the experimental groups received a script to introduce the literature materials to the children.

At approximately the same time that we were training the experimental teachers, we also conducted workshops for the parents of the children in Group E2. Materials and explanatory letters were sent to the 11 parents who had agreed to participate but who did not attend the workshops. These items were followed by phone calls to explain the study and the literature activities in more detail, and to answer any questions these parents might have.

During the weekend between the end of the baseline period and the beginning of the intervention period, we implemented the physical design component of the intervention. We created the enhanced library centers in each experimental room, following the guidelines described earlier.

The intervention period lasted 9 weeks. The teachers in Groups E1 and E2 kept a daily Literature Activity Record on which they indi-

cated the literature activities they initiated and the actions they took to encourage voluntary reading. Because this checklist might have suggested new literature activities to the control teachers, they did not receive it; instead, they completed a retrospective Literature Activity Form at the close of the study, on which they estimated the frequency with which they had carried out various literature activities. In addition, we visited the classrooms weekly to ensure that the program was being implemented in the experimental rooms, and that the control rooms were following their normal programs. Children in all conditions had free-choice time three times a week and filled out the after-school checksheets once a week. The attitude inventory and the home questionnaire were administered to the children for a second time.

At the end of the 9 weeks, the literature programs were discontinued, although the library centers were left in the experimental rooms. Teachers continued to hold free-choice time, but only once a week. During this time, no data were collected.

Near the close of the school year, free-choice time was again scheduled for three times a week. Once again, data on free-choice and after-school activities were collected. These follow-up data were used to assess whether the effects of the intervention were maintained without the teacher-led part of the program. Because only two months had passed between the end of the intervention and the follow-up period, we could assess only relatively short-term effects in this study.

## *Results*

### *Check on the Interventions*

Examination of the baseline and intervention Literature Activity Records indicates that the teachers were following the guidelines of the study. Prior to the intervention, the control and experimental groups engaged in 2 to 3 literature activities per day (e.g., the teacher read a story, and discussed it with the class). During the intervention, the control group averaged about 4 per day, and the experimental groups averaged

9 to 10. A typical day in the experimental classrooms included the following activities: The teacher read to the children and discussed the story or poem read; she placed the book that was read in the library center and mentioned that she was doing so; she acted as a reading model by reading during free-choice time; she encouraged children to read in their spare time; she encouraged children to keep track of books read on index cards; she used part of the reading period to talk about books read; she encouraged children to check books out of the library center; and she appointed children to keep the library center in an orderly condition and checked to make sure they did so.

A check on the home-based intervention was conducted by examining responses on the Home Environment Questionnaire. In order to assess how much all parents were doing to encourage voluntary reading at home, we constructed a scale from a number of individual questionnaire items (e.g., "Does your child have a library card?" "About how many times per month does your child go to the library?" "How often do you (or another adult) read to your child?" "Approximately how many children's books are in your home?" "In what rooms are these books kept?"). Scores on this scale could range from 0 to 23. The mean scores for each of the three conditions, before the intervention and during the intervention, are presented in Table 1.

An analysis of variance (ANOVA) of the scale score for each child indicated a significant increase during the intervention compared to the baseline period,  $F(1, 114) = 8.2, p < .005$ ; however, there was no significant Condi-

tion x Time Period interaction effect,  $p > .2$ . In other words, parents of children in Group E2, who were presumably participating in the reading-at-home program, did not report a greater increase in the number of literature activities carried out with their children than parents in the other conditions. Given this fact, changes in literature use in Group E2 must be attributed to the school-based component of the intervention.

### Voluntary Reading Behavior in School

The behavior of children during free-choice time is very likely to be influenced by the choices of their classmates. Such influences would violate the independence assumed in conventional statistical procedures. To avoid this problem, we used the class rather than the child as the unit of analysis. Thus, the dependent variable was the proportion of children choosing literature on any given day. Data from the three free-choice periods within each week were pooled to reduce the variability. In addition, because we observed the same pattern of effects in the two rooms within each condition, we combined the data from these two rooms. The results reported here are for these pooled data.

The weekly values form a time series with 10 baseline data points for each group: 9 data points during the intervention, and 3 data points during the follow-up period. Figure 1 presents the weekly values for each group across the entire study. The means for each time period are presented in Table 2.

*Baseline period.* As can be seen from Figure 1 and Table 2, literature use during the baseline period was very limited. Approximately 10% of the children in each condition chose the library center at free-choice time. Of all the centers, the library was the least popular; the art center was the most popular. These findings are consistent with other research demonstrating that, when other options are available, children infrequently choose to read in school.

*Intervention effects.* Because these are time series data, the order in which they were collected cannot be ignored in the statistical procedure chosen. One approach is to fit two regression equations to the data, one using the

**Table 1** Mean scores on home environment questionnaire

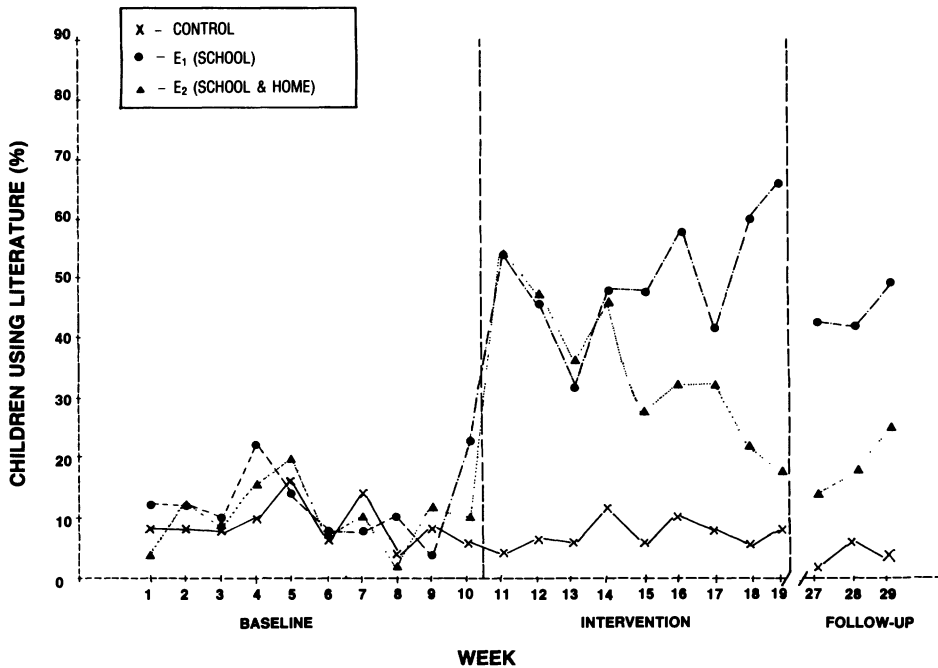
Group	Before Intervention	During Intervention
Control	12.8	13.2
Experimental 1 <sup>a</sup>	12.8	13.9
Experimental 2 <sup>b</sup>	14.7	16.2

Note. Maximum possible = 23.

<sup>a</sup>School-based program only.

<sup>b</sup>Home- and school-based programs.

*Figure 1*  
Percentages of children using literature during free-choice time by week



*Table 2* Mean percentages of children choosing literature activities during free-choice time

Group	Before Intervention	During Intervention	After Intervention
Control	.085	.072	.039
Experimental 1 <sup>a</sup>	.125	.507	.441
Experimental 2 <sup>b</sup>	.097	.350	.192

<sup>a</sup>School-based program only.

<sup>b</sup>Home- and school-based programs.

baseline data and a second using the intervention data, with the week as the independent variable. Each of these equations can be used to calculate the expected level of reading just prior to the intervention, at Week 10.5. The projected levels of voluntary reading obtained from the baseline and the intervention data each have confidence intervals determined by the corresponding regression analysis. If the level of reading projected from the intervention data is significantly greater than the level projected from the baseline data (i.e., if the confidence intervals for the two estimates do not overlap),

we can say that a statistically significant change in level took place when the intervention was instituted.

The preceding analysis rests on the assumption that successive measurements are independent (i.e., that there is no carryover from one value to the next). However, this assumption is often inappropriate for time-series data, in which case more complicated statistical techniques are required to model the way carryover occurs (Cook & Campbell, 1979). Therefore, we calculated lag correlations to test for carryover effects (Cook & Campbell, 1979). None of these correlations was

cessive data points could be treated as independent in the regression analyses.

Following this approach, we found no change in the level of literature use in the control group at the time of the intervention. Thus, any changes found in the treatment groups could not be attributed to incidents in the school or in the community that happened to occur at the same time as the intervention. The same statistical procedures found significant increases in literature use in both Group E1,  $t(15) = 3.88$ ,  $p < .002$ , and Group E2,  $t(15) = 8.4$ ,  $p < .001$ . There was no significant slope to the regression equation for Group E1 during the intervention phase, indicating that the level of voluntary reading remained constant after the reading program began, but the significant negative slope for Group E2,  $t(7) = 6.1$ ,  $p < .001$ , showed that voluntary reading declined over time.

*Follow-up period.* Given just three follow-up period data points, statistical analysis was impossible. However, according to examination of the follow-up data, the level of voluntary reading in the control group continued to be low and stable; in Group E1, voluntary reading remained relatively high and stable; and the decline in voluntary reading in Group E2 appears to have ended not only above the level of the control group, but above the level at Week 19 at the end of the treatment phase of the study.

*Activities at the library center.* In order to determine exactly what children were doing when they chose to go to the library center during the intervention and follow-up phases of the study, we examined the checksheets they completed at the end of each free-choice time. Table 3 presents the various literature-related options and the percentages of children selecting each one. (Because the same pattern was observed in all experimental rooms, data were pooled.) Reading books was clearly the most popular activity. Using the felt board while reading a book was the second most popular, and reading to a friend was third in frequency.

*Interactions with sex and achievement.* To determine whether the program had a differential impact on boys and girls, or in children of different reading achievement levels, average

**Table 3** Percentages of children who chose specific literature activities during the intervention period

Activity	Percentage <sup>a</sup>
Read a book	33.3
Used a felt board and related story	15.2
Read to a friend	12.4
Used a roll movie and related story	7.7
Wrote a story	7.6
Listened to a story at the listening station	5.3
Made up a story using story characters	5.2
Read a story using the viewmaster	4.5
Drew a picture about a story	1.2
Other	6.2

<sup>a</sup>Percentage of children who chose specific activity out of all children who selected library center. Data from both experimental groups are pooled.

scores were calculated for each child for the baseline and intervention periods, representing the proportion of free-choice periods in which he or she chose to use literature. These data were analyzed by repeated-measures analyses of variance (ANOVAs) that included the following terms and all interactions between them: achievement (dichotomized at the median for the entire sample into high vs. low), condition, and gender, all between-subjects variables; and time period (baseline or intervention), a within-subject variable.

Means and standard deviations are presented in Table 4. There was a highly significant main effect of gender: Girls chose to read more often,  $F(1, 127) = 13.5$ ,  $p < .001$ . The Sex x Time Period interaction effect was also significant: The difference between boys and girls was greater during the intervention period than before,  $F(1, 117) = 9.52$ ,  $p < .005$ . A significant Sex x Condition x Time Period interaction effect indicated that the difference in rise in interest between girls and boys was greater in the experimental conditions than in the control condition,  $F(2, 117) = 3.78$ ,  $p < .05$ . Neither the main effect of achievement level nor any of the interactions with achievement level approached statistical significance.

### Voluntary Reading Behavior at Home

Data from the after-school checklists were analyzed to determine whether the intervention

**Table 4** Mean percentages by sex and achievement of free-choice periods in which children chose to use the library center before and during the intervention

		Group					
		Control		Experimental 1		Experimental 2	
		<i>n</i>	Before	During	Before	During	Before
Girls							
High-Achievement <sup>a</sup>	36	.143 (.084)	.118 (.104)	.175 (.146)	.639 (.189)	.131 (.110)	.449 (.115)
Low-Achievement	36	.083 (.082)	.066 (.065)	.119 (.134)	.577 (.291)	.061 (.054)	.437 (.195)
Boys							
High-Achievement <sup>b</sup>	34	.052 (.050)	.085 (.170)	.080 (.112)	.367 (.172)	.084 (.187)	.278 (.226)
Low-Achievement	34	.064 (.083)	.037 (.058)	.118 (.161)	.335 (.206)	.084 (.115)	.264 (.203)

*Note.* Standard deviations appear in parentheses below the means.

<sup>a</sup>Scored above median on Iowa Test of Basic Skills. Medians: Control = 70, Exp. 1 = 66, Exp. 2 = 68.

<sup>b</sup>Scored above median on Iowa Test of Basic Skills. Medians: Control = 58, Exp. 1 = 64, Exp. 2 = 69.

had a positive effect on voluntary reading at home as well as at school. Table 5 presents the mean percentages of afternoons on which children said they read or looked at books. An ANOVA found no effect of the treatment on children's self-reported reading behavior after school.

Data on children's home reading behavior were also gathered from the parent questionnaires. Two items on the questionnaire ("What activities does your child do after school?" and "Which activity does he or she do the most?") were combined to form a measure of home reading frequency. Consistent with the children's reports of their activities, analysis of these scores showed no significant effect of the experimental interventions.

**Table 5** After-school reading as reported by children (% of days)

Group	Before Intervention	During Intervention
Control	35	36
Experimental 1 <sup>a</sup>	46	44
Experimental 2 <sup>b</sup>	50	46

<sup>a</sup>School-based program only.

<sup>b</sup>Home- and school-based programs.

## Attitudes toward Voluntary Reading

Mean attitude scores for the Askov attitude inventory are presented in Table 6. An ANOVA of the Condition x Time Period interaction was not significant, indicating that the treatment did not affect children's attitude scores.

Given the changes in actual reading behavior observed during free-choice time, it is possible that attitudes toward reading did, in fact, become more positive, but that the inventory was not sensitive enough to detect the changes. In the paired-pictures format of the questionnaire, reading a book was often competing with swimming, jumping rope, or some other outdoor activity. Although the intervention may have created changed attitudes with respect to reading in school, these may not have general-

**Table 6** Mean scores for student attitudes toward voluntary reading

Group	Before Intervention	During Intervention
Control	4.69	5.39
Experimental 1 <sup>a</sup>	7.75	7.56
Experimental 2 <sup>b</sup>	6.31	7.62

*Note.* Maximum possible = 18.

<sup>a</sup>School-based program only.

<sup>b</sup>Home- and school-based programs.

ized to the kinds of out-of-school situations depicted in the inventory.

## *Discussion*

### **Voluntary Reading in School**

The implementation of regularly scheduled literature activities and the creation of appealing, carefully designed library centers led to a substantial increase in children's selection of literature during free-choice time, an increase that was maintained even when the program part of the intervention was ended. These findings have direct implications for classroom instruction. They document the behavioral changes that can occur when teachers carry out literature activities designed to increase interest in books, and when they create a supportive physical environment.

It is important to emphasize that the increase in library-center use reflects an increase in actual reading. When children chose to go to the library center during free-choice time, reading—either alone, with a friend, or in conjunction with the felt board or roll movie—accounted for almost 70% of the activity that occurred there. It would seem that a wide variety of materials, bulletin board displays, pillows, and props are necessary to entice children to go to the library corner, but that once there, the children do focus on the books themselves.

A particularly interesting finding was the lack of a significant correlation between the use of literature and children's level of reading achievement, either before or during the intervention. In other words, there was no difference in the frequency with which high-achievers and low-achievers chose the library center as a free-choice activity. These findings are consistent with those of a previous study (Morrow, 1983) in which some low-achieving children demonstrated a high interest in literature, and some high-achieving children showed a low interest in literature. Although previous research has shown that voluntary readers tend to be those who can read well, the results of these studies demonstrate that a supportive literary environment can attract even poor readers to literature.

One would also hope, of course, that participation in such activities would eventually improve reading skills. Future studies need to address this issue.

Although literature use was unrelated to achievement level, it was highly correlated with students' sex. Girls not only chose literature more frequently than boys prior to the intervention, but they were more responsive to the intervention. These results are consistent with other studies that have found girls to be more interested in voluntary reading than boys (Conner, 1954; Greaney, 1980; Long & Henderson, 1973; Maxwell, 1977; Whitehead, Capey, & Maddren, 1975).

Although the design of the study makes rigorous statistical comparison between groups impossible, informal examination of the effects suggests a greater increase in literature use in Group E1 (school-based intervention only) than in Group E2. Anecdotal records kept during our on-site observations suggest two possible explanations. First, in their enthusiasm for the project, the teachers in Group E1 added some materials to the library centers and encouraged a few activities that were not on the list we provided. For example, observations documented that children were reading newspapers brought in by the teachers and doing some story role-playing—both excellent, but “unofficial,” activities. In contrast, the teachers in Group E2 (although equally enthusiastic) followed the outlined program exactly as prescribed.

A second explanation concerns the physical space available in the classrooms for the library centers. The Group E2 classrooms were considerably smaller than the Group E1 rooms. This led to the construction of library centers for Group E2 that were also considerably smaller. The Group E2 library centers could comfortably accommodate no more than five children at one time; other students had to take the materials out of the center in order to use them. In so doing, they often had to climb over other children. In contrast, the Group E1 library centers could accommodate six or more children. The larger space meant not only that more students could work in the library area, but also that materials were far more accessible. Because it is

likely that this difference in space contributed to the greater use of literature in Group E2, future research should ensure that all library areas are the same size.

The library centers remained in the classrooms after the program intervention ended. Because it was felt that both teachers and students would be upset if the library centers with all their materials were removed, we decided to leave the centers in the rooms. It is, therefore, difficult to know whether the interest in literature observed during the final 3 weeks of the study was due to the presence of the library centers or to the continuing impact of teacher-led activities that had been terminated 8 weeks earlier. In future studies, library centers could be removed, thus re-creating the baseline situation in which books were stored in a box and no other materials were present.

### Voluntary Reading at Home

In contrast to the significant increases in voluntary literature use effected in school, the level of voluntary reading at home did not change. This finding is not particularly surprising. In school, a prescribed period of free-choice time, with a set number of prescribed alternatives, was set aside to assess the impact of the intervention. In other words, we were able to create a structured environment in which competing activities and distractions were limited, time for reading was available if desired, and interest in reading was easily measured. It was obviously impossible to assert similar control after school. The logs filled out by the children indicate that their after-school lives were filled with piano and dance lessons, soccer practice, Scouts, television, and family responsibilities. We may have been successful in increasing *interest* in literature outside the classroom, but with so many competing activities, the change may not have been sufficient to change the pattern of after-school *behavior*. Furthermore, the after-school log was undoubtedly a less accurate means of assessing change than the children's choice of an activity during free-choice time. Future studies should consider longer intervention periods and more precise methods for measuring home behavior.

### Reading-at-Home Program

The study was unable to test the efficacy of a school program implemented in conjunction with a reading-at-home program. Despite our efforts and those of the teachers and unit leaders to encourage parents to participate, the responses to the parent questionnaires revealed no significant increase in literature activities conducted at home. In other words, Group E2 parents did not really follow through with the activities demonstrated at the parent workshops. One reason for the lack of response may be that the study was carried out in a community where parents were already doing many of the activities we suggested. For example, according to results of the baseline parent questionnaires, 66% of the children already had library cards, 32% went to the library three to four times a month, and 50% of the parents read to their children on a daily basis. Although there was certainly room for improvement (e.g., the mean score on the Home Environment Questionnaire was 14.7 out of a possible score of 23), it may have been unrealistic to expect parents to do more than they were already doing. Another reason for the lack of parental response may be that the study was unable to provide the incentives, ongoing training, and support needed by parents who are already overburdened with other responsibilities. Future studies requiring parental participation need to pay careful attention to this issue. It may be wise both to choose communities in which parents do not already provide relatively rich literary environments in their homes, and to build into the design more intensive training and reinforcement.

### Informal Observations

In addition to collecting quantitative data, we interviewed the experimental teachers and asked them to fill out a questionnaire concerning their reactions to the study. A few of their comments and anecdotes have important implications for classroom practice.

First, teachers reported that they were initially skeptical about the amount of time that the study would take away from other classroom activities (e.g., skill worksheets), but that their

feelings changed over time. By the end of the study, they saw literature as an integral part of the reading instruction program. They all reported that they planned to continue the program, with some modification, and believed that the time would be well spent. In particular, the teachers felt it would be worthwhile to maintain a library center with a large variety of books (which were exchanged frequently for new ones), comfortable seating, a record-keeping system for books read, listening stations, and shelves that allowed books to be displayed with their covers showing. In addition, teachers reported that several activities had been particularly enjoyable and beneficial, and indicated that they would continue to do them: allowing children to share their experiences with books and to take books home from the classroom library; having students make their own books; having guest story readers such as the principal, parents, and secretaries; encouraging children to read to other children; and making children responsible for the orderly appearance of the library center.

The teachers related a number of other reactions to the library centers that deserve mention. First, the teachers observed that the literature props served to attract children to the centers, but that once there, the children then used the books more frequently than the props (an observation that was confirmed statistically). Second, the teachers emphasize that the literature activities provided a social context for learning. Children tended to work together in many situations. They wrote books together, they told and read felt-board stories together, they read to each other, and they read separate books while sitting close to each other. Furthermore, children of all ability levels chose the library center, a situation that encouraged social interaction between children who did not normally mingle with each other. For example, a child who read well might read a story out loud, while a child with less reading ability manipulated the story characters on the felt board.

## *Implications*

The present study is based on the premise that fostering voluntary reading should be an integral part of reading instruction. Irving (1980) contends that teachers can play a major role in stimulating voluntary reading. The results of this investigation confirm this belief.

If one agrees that it is important for children to develop voluntary reading habits, then the reports that considerable numbers of children do not choose to read are cause for concern, and the need to promote voluntary reading becomes apparent. It would seem that the current emphasis in the schools on skill development does not foster voluntary reading. Too often, such programs create individuals who can read, but choose not to read. According to Daniel Boorstin, Librarian of Congress, aliterates (individuals who can read but choose not to) constitute as much of a threat to a democratic tradition built on books and reading as illiterates (Boorstin, 1984). Voluntary reading—or the lack of it—“will determine the extent of self-improvement and enlightenment, the ability to share wisdom and the delights of our civilization, and our capacity for intelligent self-government” (p. [iv]).

It is time for schools to look beyond achievement test performance and to implement reading programs that include as a major purpose the development of voluntary reading. The findings of the present study suggest that such a goal not only is feasible, but can be achieved without a great expenditure of teacher time and effort, or money. Numerous books (e.g., Irving, 1980; Morrow, 1985; Spiegel, 1981) describe programs to promote voluntary reading. Materials for the programs are generally inexpensive and are easy to obtain or to construct. Books for the classroom library can be borrowed from the school or public library, or donated from home. In sum, no aspect of the intervention implemented in the present study would be difficult for teachers to carry out in their own classrooms.



We are not suggesting that voluntary reading be stressed at the expense of skill development, but rather that both should be an integral part of every reading program. We must strive to make every classroom a literacy-rich environment.

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An outline of the complete literature program with guidelines for literature activities, library center designs, and the parent program are available upon request from the authors.